(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 12 May 2005 (12.05.2005)

PCT

(10) International Publication Number WO 2005/042512 A1

(51) International Patent Classification7:

C07D 317/54

(21) International Application Number:

PCT/EP2004/052710

(22) International Filing Date: 28 October 2004 (28.10.2004)

(25) Filing Language:

English.

(26) Publication Language:

English

(30) Priority Data: MI2003A002103 30 October 2003 (30.10.2003)

- (71) Applicant (for all designated States except US): ENDURA S.P.A. [IT/IT]; Viale Pietramellara, 5, I-40125 BOLOGNA (IT).
- (72) Inventors; and

- (75) Inventors/Applicants (for US only): BORZATTA, Valerio [IT/IT]; Via Bellettini, 20, I-40127 BOLOGNA (IT). CAPPARELLA, Elisa [IT/IT]; Via Santucci, 17, I-48100 RAVENNA (IT). GOBBI, Carlotta [IT/IT]; Via Ravegnana, 42, I-48100 RAVENNA (IT). POLUZZI, Elisa [IT/IT]; Via Matteotti, 16, I-40012 CALDERARA DI RENO (IT).
- (74) Agent: GERVASI, Gemma; NOTARBARTOLO & GER-VASI S.p.A., Corso di Porta Vittoria 9, I-20122 MILAN (IT).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

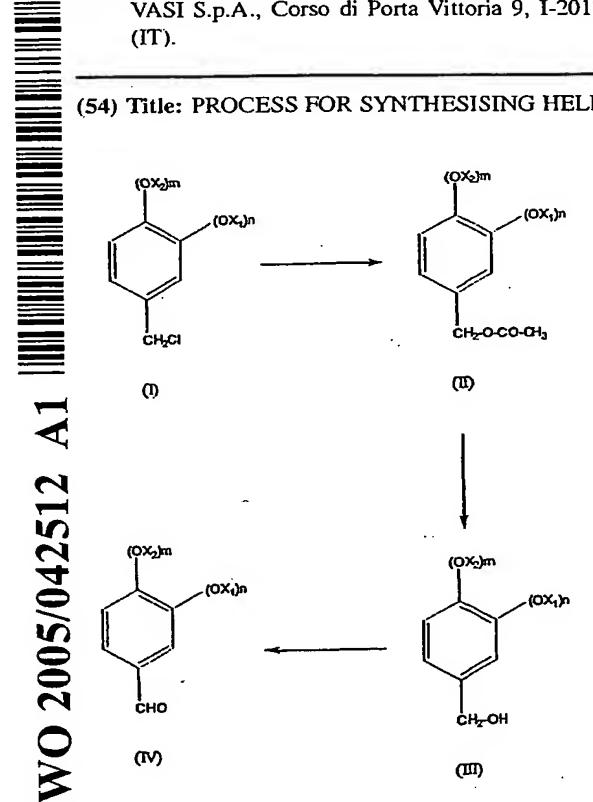
of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR SYNTHESISING HELIOTROPINE AND ITS DERIVATIVES



(57) Abstract: A new high-yield, easily industrialized process for synthesising compounds of formula (IV), in which X1 and X2, the same or different, are linear or branched C1-C8 alkyls, n and m are 0,1 or 2, with the proviso that n and m are not simultaneously 0; or (OX₁)n and (OX₂)m taken together form an O-T-O group where T is chosen from -CH2-, -CH2CH2, -CH2CH2CH2-, -C(CH₃)₂-. The process comprises treating a chloromethyl derivative (I) with an alkaline acetate to form the intermediate acetylderivative (Π); the intermediate (Π) is to hydrolysed to form the alcohol (Π); the alcohol (Π I) is then oxidised in the presence of air and catalysts to obtain the desired derivative (IV). The process runs its course within a short period of time, with high yields and high selectivity; in addition, the process does not require purification and separation of the intermediates and can therefore be favourably conducted in a single batch.